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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,166	11/30/2000	Harold A. Dvorachek	1709898	2672

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EXAMINER
KRECK, JOHN J

ART UNIT	PAPER NUMBER
3673	

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/727,166	DVORACHEK, HAROLD A.	
	Examiner	Art Unit	
	John Kreck	3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-19,26-30 and 51-64* is/are pending in the application.

4a) Of the above claim(s) *16-19,26-30 and 61-64* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-53 and 55-60* is/are rejected.

7)☒ Claim(s) *54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/25/03 has been entered.

2. Claims 16-19, 26-30, and 51-64 are pending.

3. Claims 16-19, 26-30, and 61-64 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 51, 52, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Mills, et al. (U.S. Patent number 4,813,501).

Mills shows a replaceable cutting element (48) comprising a contact structure including a tip (52) and tapered structure concentric with the overall element; a mounting structure (near 42); and the contact structure bilaterally symmetric with a

generally obtuse included angle as called for in claim 51. Note that Mills does not discuss the suitability of the use of the cutting element to be mounted on the body of a drag bit off center from the axis of rotation. The suitability of such mounting is inherent; it is apparent that the cutting element is suitable to be mounted nearly anywhere. It is noted that the claim does not require the element to be actually mounted in such a manner, and applicant has not identified any specific structure which provides the suitability or identified any specific features of the Mills element which would make it unsuitable..

Mills also shows an engageable structure as called for in claim 52.

Mills also shows the point (52) as called for in claim 55.

Mills also shows an engageable structure with a non-cylindrical surface (see figure 3, the side edges of the blade form a non-cylindrical surface) as called for in claim 56.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 58 is rejected under 35 U.S.C. 103(a) as obvious over Mills, et al.

Mills fails to explicitly disclose the material for the tip structure. It is notoriously conventional to make such structures with tungsten carbide (see page 2, line 20 of

applicant's specification). It would have been obvious to one of ordinary skill in the art at the time of the invention to have made the Mills structure with carbide, as called for in claim 58, because it is relatively inexpensive and efficient for cutting.

3. Claims 57 and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills, et al. in view of Reusser (U.S. Patent number 4,384,737).

Mills teaches all oh the limitations of claim 51,from which claim 57 depends, and also shows a screw thread, but fails to explicitly disclose a conical thread.

The advantages of conical screw threads are well known, as evidenced by Reusser. Conical threads offer easier installation and removal, as well as increased joint strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Mills device to have included a conical thread as called for in claim 57, in order to offer easier installation and removal, as well as increased joint strength.

Regarding independent claim 59:

Mills shows an elongated self locking replaceable cutting element comprising a contact structure comprising a cutting tip (52); a mounting structure (near 42); a helical thread structure; wherein the tip and mounting structures are formed on the same axis, and a portion of the tip is generally bilaterally symmetrical in at least three equally spaced radial directions. Note that Mills does not discuss the suitability of the use of the

cutting element to be mounted on the body of a drag bit off center from the axis of rotation. The suitability of such mounting is inherent; it is apparent that the cutting element is suitable to be mounted nearly anywhere. It is noted that the claim does not require the element to be actually mounted in such a manner, and applicant has not identified any specific structure which provides the suitability or identified any specific features of the Mills element which would make it unsuitable.

Mills fails to explicitly disclose the conical thread.

The advantages of conical screw threads are well known, as evidenced by Reusser. Conical threads offer easier installation and removal, as well as increased joint strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Mills device to have included a conical thread as called for in claim 59, in order to offer easier installation and removal, as well as increased joint strength.

With regards to claim 60; Reusser fails to teach an angle between 20° and 60°. It is apparent that the conical thread must have some included angle; it is apparent that one of ordinary skill in the art would have arrived at an angle of between 20° and 60° through routine experimentation; thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have further modified the Mills tool to have an angle of between 20° and 60° as called for in claim 60.

4. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mills, et al. in view of Evans (U.S. Patent number 4,148,368).

Mills fails to teach the material for the tip and tapered structures.

Evans shows a similar tool which includes a tapered structure with hardness softer than 92, and a tip with hardness greater than 92. This allows the tool to be manufactured with greatest wear resistance at the point of highest forces, while allowing the remainder of the tool to be manufactured from less expensive materials.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Mills tool to have included the tapered structure with hardness softer than 92, and the tip with hardness greater than 92 as called for in claim 53, in order to increase wear resistance while keeping costs down.

Allowable Subject Matter

5. Claim 54 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

.Response to Arguments

6. Applicant's arguments filed 8/25/03 have been fully considered but they are not persuasive. Applicant has argued that the amended claim language calls for the "element is mounted 'off center from the axis of rotation of said bit'". The claim

language only calls for the element to be "suitable" for such mounting. The rejection is based on the inherent suitability of the Mills element to be mounted off center. Similar elements are shown mounted off center in drag bits such as shown by Holsing (U.S. Patent number 3,075,593) or Jones (U.S. Patent number 4,838,366).

With regards to applicant's arguments that the Mills element does not have a tapered contact structure; it is clear that the pilot cuter is intended to contact the formation (see col. 8, line 62), and thus the edge shown near 46 in figure 1 comprises a tapered contact surface.

With regards to the engageable structure; it is clear that the Mills element is engageable; otherwise how could it be screwed in or removed?

Applicant's arguments regarding claim 54 are persuasive; although the element cuts a conical depression, it is not itself conical.

Applicant's arguments regarding the combination of Mills and Reusser are not persuasive. In response to applicant's argument that the tapered threaded in the claimed invention is used to prevent unscrewing, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nelson (U.S. Patent number 5,732,784) shows a drag bit with a

pilot element in combination with a number of cutting elements which are sometimes known as studs or buttons.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on M-F 5:30 am - 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.

John Kreck
Examiner
Art Unit 3673

JJK